

Claims

1. Method at the twin-wire formation section of a paper or board machine, wherein the fibrous stock supplied by the headbox (1) is guided in between forming wires (11, 12; 51, 61) formed as wire loops, where water is removed from the fibrous stock in at least two successive dewatering zones (Z1, Z2), whereby at least a part of the first dewatering zone (Z1) is formed with the aid of at least one fixed forming shoe (3, 3a) provided with a deck (5) having a curved surface, against which forming shoe one of the forming wires (11/12; 61) is supported while the opposite forming wire (12/11; 51) is unsupported in the area of the forming shoe (3, 3a) and whereby the latter, that is, the second dewatering zone (Z2) is formed by fixed dewatering blades (21), which are in the cross-machine direction on the other side of the forming wires (11, 12; 51, 61) and are supported against the fibrous stock located in between these, and in between the dewatering blades there are gaps (22), and on the opposite side of the forming wires (11, 12; 51, 61) by dewatering blades (24), which can be loaded in a controlled fashion at the gaps (22) in between the fixed dewatering blades (21) against the fibrous stock between the forming wires in such a way that the second dewatering zone (22) is used to cause pulsating dewatering in the fibrous stock, **characterised** in that the forming wires (11, 12; 51, 61) are guided from the beginning of the twin-wire forming section into the area of the fixed forming shoe (3, 3a) of the first dewatering zone (Z1) in such a way that the fixed forming shoe (3, 3a) is used to cause essentially non-pulsating dewatering in the fibrous stock travelling in between the forming wires (11, 12; 51, 61), which dewatering is applied to the fibrous stock in the area following after the leading edge (7) of the fixed forming shoe (3, 3a).
2. Method according to claim 1, **characterised** in that underpressure is applied to the fibrous stock through the deck (5) of the fixed forming shoe (3, 3a).

3. Method according to claim 1 or 2, **characterised** in that the fibrous stock is guided into the area of the fixed forming shoe (3) with the aid of the forming wire (11, 51) located farther away from the fixed forming shoe (3) in such a way that the fibrous stock will be in contact with the forming wire (12, 61) located closer to the mentioned fixed forming shoe (3) after the leading edge (7) of the forming shoe (3).
4. Method according to any claim 1 - 3, **characterised** in that forming of the web is carried out by a blade type gap former (10, 10a), whereby the lip jet (2) of the headbox (1) is directed into the former's gap (G) on to the forming wire (11) farther away from the fixed forming shoe (3) before the fixed forming shoe (3).
5. Method according to claim 4, **characterised** in that the lip jet (2) of headbox (1) is directed on to the forming wire (11) located farther away from the fixed forming shoe (3) into the unsupported area (B) of the forming wire (11) located before the fixed forming shoe (3).
6. Method according to any claim 1 - 3, **characterised** in that forming of the web is carried out by a hybrid former (50) known as such, wherein a twin-wire forming section is formed with the aid of a fourdrinier wire (51) and a former unit (60) fitted on top of it, to which twin-wire former unit gap (G) the fibrous stock is taken on the fourdrinier wire (51), whereby in the twin-wire former unit a first dewatering element is formed with a fixed forming shoe (3).
7. Method according to claim 1 or 2, **characterised** in that forming of the web is carried out by a roll and blade gap former (30, 30a) equipped with a forming roll (34), wherein a first non-pulsating dewatering zone (Z1) is formed with the aid of a forming roll (34) and a fixed forming shoe (3) fitted after it, whereby the fibrous stock is guided with the aid of forming roll (34) to be in contact with the fixed forming shoe (3).

8. Twin-wire forming section of a paper or board machine, including forming wires (11, 12; 51, 61) formed as wire loops with the aid of guiding rolls and hitch rolls and/or other such structures, and in the area of the forming wires are arranged at least two successive dewatering zones (Z1, Z2), whereby at least a part of the first dewatering zone (Z1) is formed with the aid of at least one fixed (3, 3a) forming shoe provided with a deck (5) having a curved surface, against which forming shoe one of the forming wires (11/12; 61) is supported while the opposite forming wire (12/11; 51) is unsupported in the area of the forming shoe (3, 3a) and whereby the latter, that is, the second dewatering zone (Z2) is formed by fixed dewatering blades (21) on the other side of the forming wires (11, 12; 51, 61) in the cross-machine direction and supported against the fibrous stock between them, between which dewatering blades there are gaps (22), and on the opposite side of the forming wires (11, 12; 51, 61) by dewatering blades (24), which can be loaded in a controlled manner against the fibrous stock located between them at the gaps (22) in between the fixed dewatering blades (21) in order to cause pulsating dewatering in the fibrous stock in the second dewatering zone (Z2), **characterised** in that the forming wires (11, 12; 51, 61) are guided from the beginning of the twin-wire forming section into the area of the fixed forming shoe (3) of the first dewatering zone (Z1), and that the fixed forming shoe (3) is provided with an essentially open surface and it is constructed under the effect of underpressure (4) arranged under the forming shoe (3) to cause essentially non-pulsating dewatering in the fibrous stock travelling in between the forming wires (11, 12; 51, 61), which dewatering is applied to the fibrous stock in the area after the leading edge (7) of the forming shoe.
9. Twin-wire forming section of a paper or board machine according to claim 8, **characterised** in that the headbox (1) is fitted to feed fibrous stock on to the forming wire (11, 51) located farther away from the fixed forming shoe (3), which forming wire is arranged to bring the fibrous stock into the area of the first forming shoe (3) in such a way that the fibrous stock will be in contact with the

forming wire (12, 61) located closer to the mentioned forming shoe (3) after the leading edge (7) of the fixed forming shoe (3).

10. Twin-wire forming section of a paper or board machine according to claim 8 or 9, **characterised** in that the forming section is a blade type gap former (10, 10a), into the gap (G) of which the lip jet (2) of headbox (1) is directed on to the forming wire (11) located farther away from the fixed forming shoe (3) before the fixed forming shoe (3).
11. Twin-wire forming section of a paper or board machine according to claim 10, **characterised** in that the lip jet (2) of headbox (1) is directed on to the forming wire (11) located farther away from the fixed forming shoe (3) into the unsupported area (B) of the forming wire located before the fixed forming shoe (3).
12. Twin-wire forming section of a paper or board machine according to claim 8 or 9, which is a hybrid former (50) known as such, wherein the twin-wire forming section is formed with the aid of a fourdrinier wire (51) and a former unit (60) fitted on top of it, and fibrous stock is brought into the gap (G) of the twin-wire former unit on a fourdrinier wire (51), **characterised** in that the first dewatering element of the twin-wire forming section includes an underpressurized fixed forming shoe (3).
13. Twin-wire forming section of a paper or board machine according to claim 8, **characterised** in that the forming section is a roll and blade gap former (30, 30a), whose first non-pulsating dewatering zone (Z1) includes a forming roll (34) and a fixed forming shoe (3) fitted after it, whereby the fibrous stock is guided with the aid of a forming roll (34) to be in contact with the fixed forming shoe (3).

14. Twin-wire forming section of a paper or board machine according to any claim 8 - 13, **characterised** in that the open surface area of the deck (5) of the fixed forming shoe (3, 3a) is at least 50 % of the total surface area of the shoe.
15. Twin-wire forming section of a paper or board machine according to any claim 8 - 14, **characterised** in that the open surface area of the deck (5) of the fixed forming shoe (3, 3a) is formed with the aid of holes (6) or other such openings extending through the deck.
16. Twin-wire forming section of a paper or board machine according to any claim 15, **characterised** in that the holes (6) or other such openings extending through the deck and forming the open surface area of the deck (5) of the fixed forming shoe (3, 3a) are arranged at an angle in relation to the top surface of the deck (5) and against the direction of travel of the forming wire (12, 11, 61) travelling over the deck.
17. Twin-wire forming section of a paper or board machine according to any claim 8 - 16, **characterised** in that the radius (R) of curvature of the deck (5) of the fixed forming shoe (3, 3a) is in a range of 600-4000 mm, preferably 800-3000 mm.
18. Twin-wire forming section of a paper or board machine according to any claim 8 - 17, **characterised** in that the overlap angle of the forming wire (11, 12, 61) travelling over the fixed forming shoe (3, 3a) in the area of the deck (5) of the fixed forming shoe (3, 3a) is in a range of 3-45 degrees, preferably 5-30 degrees.